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107 L1

END OF SEARCH HISTORY

First Hit Fwd Refs

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L1: Entry 93 of 261

File: USPT

Mar 13, 2001

DOCUMENT-IDENTIFIER: US 6202092 B1

TITLE: Print system managing the security of a printer shared on a network

Abstract Text (1):

Authority of each user to use a printer is set in a security data base with respect to the number of sheets to be printed, kinds of sheets, and special printing functions. A print request, including the number of sheets to be printed, the kinds of sheets, and whether special printing functions are to be used are sent to a security validating device, and the security validating device decides whether authorization to use the printer is to be granted based on the restrictions on the user maintained in the data base and the status of the user. If printing is authorized, after the printing is completed, an editing device updates information on the status of use in the security data base.

Application Filing Date (1):

19971124

Brief Summary Text (3):

The present invention relates to a print system for managing the security of a printer shared on a network, and more particularly, for checking whether users have the authority to print or access the security data.

Brief Summary Text (5):

Conventionally, in a security management system of this kind, a printer is managed by a server computer. Upon receipt of a request from a user to print or to read and modify security data in the server computer, the server determines whether the user has the proper authority for the requested service.

Brief Summary Text (6):

More specifically, as shown in FIG. 5, with respect to a request from a user for printing or reading and modifying the security data, the server computer first acquires the user ID (identifying information) of the requesting user (step S21 in FIG. 5), and then determines the nature of the request (whether it is a print request) (step S22 in FIG. 5).

Brief Summary Text (8):

If the user is authorized for such access, the server computer allows the user to read and modify the security data via a user interface (step S24 in FIG. 5). If the security data is thus changed (step S25 in FIG. 5), the server computer saves the changes (step S26 in FIG. 5).

Brief Summary Text (9):

On the other hand, if the request is merely to print, the server computer determines whether the user has print authority (step S27 in FIG. 5), providing an error indication if not (step S29 in FIG. 5). If the user is authorized, the server computer executes print processing (step S28 in FIG. 5).

Brief Summary Text (10):

In addition to the security management system mentioned above, there also exists a system in which the authority to use a printer commonly used on a network is set

with respect to each computer on the network. Printing is authorized only with respect to a print request from a computer having the proper authority, and the number of sheets of the print request is counted and recorded so that the print account of each computer on the network may be determined.

Brief Summary Text (11):

In the case of this system, when a print request is made from a computer, the number of sheets of the print request is counted by a print sheet number counting portion, and the count is transferred to a maintenance computer to be recorded. The maintenance computer records the total number of printed sheets with respect to every computer or every department the computers belong to. This technique is disclosed in Japanese Patent Application Laid-Open No. 7-73128.

Brief Summary Text (12):

In the conventional security management systems described above, the required security function only determines whether or not a user may use the printer, and can not place restrictions on the printable number of sheets, the kind of paper, or which paper feeder is to be used. Neither can it restrict use of functions such as color printing, printing on both sides, and enlarged/reduced printing.

Brief Summary Text (13):

Further, although it is known to record the number of printed sheets with respect to each computer or each department the computers belong to, since the number of printed sheets per type of paper or per paper feeder and the number of times double-sided and color printing are used are not recorded with respect to every user, a manager can not determine the cumulative number of such uses, and therefore, can not manage them.

Brief Summary Text (15):

Accordingly, an object of the present invention is to solve the above problems and to provide a print system in which restrictions can be placed on the cumulative number of pages printed or usable printing function with respect to every user, allowing a manager to monitor use of a shared printer.

Brief Summary Text (16):

According to a print system of the present invention, the print system with a shared printer on a network comprises a data base for, corresponding to user identifying information for specifying a user of the printer, storing restricting information indicating a range of authority to use indicating the printable number of sheets and a usable function for the user with respect to the printer and for storing status of use of the printer by the user, a print validating means for, when a print request to the printer is inputted, based on print content included in the print request and on the user identifying information, referring to the data base and deciding either authorization or non-authorization of printing with the printer with respect to the print request, a print history recording means for, after printing according to the print request is executed, updating the status of use in the data base corresponding to the user identifying information included in the print request, and a means for referring to and editing the data base in response to instruction from the outside registered in advance.

Brief Summary Text (17):

The print system according to the present invention has a security data base in which authority to use a shared printer can be set with respect to individual users and, in addition, status of use with respect to every user is recorded.

Brief Summary Text (18):

More specifically, the print system according to the present invention has a means for recording and maintaining authority of every user, a means for analyzing a print request, a means for checking authority of a user, and further, a means for recording the number of sheets consumed after printing with respect to each kind of

paper or paper feeder, or, a means for recording statistical information with respect to each user indicating the number of times special printing functions such as printing on both sides and color printing are used.

Brief Summary Text (19):

Further, a printer driver in the print system according to the present invention has a means for changing the authority of users and referring to and editing statistical information of status of use of a printer with respect to the security data base.

Brief Summary Text (20):

The means for recording and maintaining authority of every user of the print system according to the present invention maintains a security data base in which authority of each user and statistical information of status of use of each user are put together. The means for analyzing a print request determines information such as the number of pages to be printed, which paper feeder is used, the type of paper, and special print features. The means for checking authority of a user compares the respective requests with data maintained in the security data base and carries out verification. Only if all of the requests are validated is the requested printing executed. After printing, the means for recording statistical information with respect to every user updates the security data base.

Brief Summary Text (21):

These means make it possible to set authority to use the shared printer not in a conventional way by merely determining whether allowable or not, but in various ways such as based on the accumulated number of printed pages, the number of pages with respect to every paper feeder or variety of pages, or special printing such as printing on both sides and color print.

Brief Summary Text (22):

Further, the means for checking authority of a user verifies authority to access sensitive data. In case of a user having management authority, by the means for changing the set authority of users and reading and modifying statistical information of status of use of a printer, the content of the security data base can be displayed and edited. The changes are recorded in the security data base by the means for recording statistical information with respect to every user. These means make it possible for a manager to set authority of a user. Further, information such as the number of pages printed on each kind of paper or how often double-sided printing or color printing is used can be provided a manager for each user.

Drawing Description Text (5):

FIG. 3(b) illustrates an example of the restrictions and the current status of use with respect to each special printing function as stored in the security data base according to an embodiment of the present invention.

Drawing Description Text (7):

FIG. 5 is a flow chart illustrating operation of a conventional print system.

Detailed Description Text (2):

With reference to FIG. 1, a client computer 1 is provided with a user application 11 and a network driver 12. A server computer 2 is provided with a network driver 21, a printer driver 22, and a file device 23. The printer driver 22 of the server computer 2 includes a print request analyzing portion 22a, a security validating portion 22b, an interface 22c for a manager, a statistical information managing portion 22d, and a drawing processing portion 22e.

Detailed Description Text (3):

A document prepared by the user application 11 on the client computer 1 is transferred to the server computer 2 via the network drivers 12 and 21. The printer

driver 22 of the server computer 2 analyzes, in the print request analyzing section 22a, a user ID (identifying information) and information such as the number of pages to print, the kind of paper, and special printing functions requested by the user.

Detailed Description Text (4):

The security validating portion 22b sends the result of analysis by the print request analyzing portion 22a to the statistical information managing portion 22d, which acquires information with regard to the user from a security data base maintained in the file device 23. The security validating portion 22b compares the result of analysis by the print request analyzing portion 22a with the information pertaining to the user, and, if requirements for printing are not satisfied, rejects the print request. In that case, the security validating portion 22b transfers an error message to the client computer 1 via the network drivers 21 and 12 and informs the user of the error message.

Detailed Description Text (5):

On the other hand, if requirements for printing are satisfied, the drawing processing portion 22e carries out print processing and a printer 3 prints the requested pages. When the printer 3 prints the pages, the statistical information managing portion 22d adds the number of printed pages to the current total for the type of paper used and the current total for the number of times special printing functions have been used, as appropriate. The updated security data base is stored on the file device 23.

Detailed Description Text (7):

If the user is authorized to read and modify the data base, the statistical information managing portion 22d acquires information with respect to all users from the data base on the file device 23, and outputs the data to the interface 22c for a manager via the security validating portion 22b or to the printer 3 via the drawing processing portion 22e.

Detailed Description Text (10):

The network drivers 12 and 21 operate as a part of an operating system on the client computer and the server computer 2, respectively, and data transfer from one to the other can be carried out. The printer 3 is connected with a printer port (not shown) of the server computer 2 via a printer cable (not shown) to be capable of receiving a print data.

Detailed Description Text (11):

The security data base is recorded on the file device (fixed disk) 23 on the server computer, and only the printer driver 22 on the server computer 2 can read and modify the security data base. It is to be noted that the printer driver 22 is stored in a memory (ROM: read only memory) (not shown) of the server computer 2.

Detailed Description Text (12):

Print data is stored on the file device 23 as a temporary file by the operating system from the network driver 21. The printer driver 22 reads the temporary file and acquires a user ID and print job information included therein.

Detailed Description Text (13):

The interface for manager 22c is maintained in the memory as a part of the printer driver 22, acquires the user ID of the user logging in the server computer 2 with the operating system, and does not authorize a user to use the interface 22c itself when the user does not have the appropriate authority.

Detailed Description Text (15):

When a print request or a request to read and modify the security data base on the file device 23 is inputted from a user, the printer driver 22 operating on the server computer 2 acquires from the request the user ID of the requestor (step S1

in FIG. 2), then determines the type of request (whether it is a print request or not) (step S2 in FIG. 2).

Detailed Description Text (16):

If the request is a print request, the print request analyzing portion 22a judges from the print data the number of pages in the print job, which kind of paper or paper feeder (not shown) the user is requesting, and which, if any, special printing function is requested (step S7 in FIG. 2). With regard to the respective requests, the security validating portion 22b determines whether the requests are within the limits on the number of pages (step S8 in FIG. 2) and whether any requested special printing functions are allowed or not (step S9 in FIG. 2) based on the stored authority and statistical information of the user in the security data base, and decides authorization or non-authorization to print.

Detailed Description Text (17):

If the print request satisfies all the requirements, the security validating portion 22b authorizes printing by printer 3. If the print request fails to satisfy one or more of the requirements, the security validating portion 22b does not authorize the requested print job, and an error indication is given (step S12 in FIG. 2).

Detailed Description Text (18):

If printing is authorized, the drawing processing portion 22e carries out print processing with respect to the print data stored on the file device 23 as a temporary file and the printer 3 is activated (step S10 in FIG. 2). It is to be noted that, though whether the print request is within the restrictions on the number of sheets and whether the special printing is usable or not are judged in the above embodiment, if there is a restricting item other than the above restrictions, judgement is also made with respect to that restricting item between the step S9 and the step S10.

Detailed Description Text (19):

When the printer 3 prints, the statistical information managing portion 22d adds the number of printed pages with regard to each kind of paper or paper feeder and the number of times a special printing function is used to the cumulative total for these values, and updates the security data base with the result of the addition (step S11 in FIG. 2).

Detailed Description Text (23):

Based on the conditions represented by FIG. 3(a), if all the users A, B, and C make a request to print 30 pages using woodfree paper, user A, having thus far printed 100 pages, will not exceed the maximum of 500 by printing 30 additional pages, and is therefore authorized to print. After printing 30 pages of woodfree paper, the cumulative number of printed pages with regard to woodfree paper is: $100+30=130$.

Detailed Description Text (24):

On the other hand, since the user B has already printed 480 pages of woodfree paper, and thus, the maximum number of pages of woodfree paper will be exceeded if an additional 30 pages are printed, the user B is not authorized to print and the print request is rejected. In addition to the error indication, user B is told to select printing only 20 pages on woodfree paper or print all (30 sheets) on recycled paper.

Detailed Description Text (25):

With respect to user C, since the maximum number of printable pages of woodfree paper for him is ".infin.," he is authorized to print. After this printing on woodfree paper, the cumulative page count for woodfree paper corresponding to the user C is updated in the same way as in the case of the user A: the current cumulative total of $100+\text{additional } 30=130$.

Detailed Description Text (26):

FIG. 3(b) shows restrictions with respect to every special printing function as represented in the security data base according to an embodiment of the present invention. The maximum number of pages is the same with regard to the users A, B, and C. Here, if the users A, B, and C each requests 30 pages of color printing, double-sided printing, and stapled pages, user A can use only color printing, user B can use none of the functions, and user C can not use the staple function, though he can use color printing and double-sided printing.

Detailed Description Text (27):

FIG. 4 is a block diagram illustrating another embodiment of the present invention. In the figure, the client computer 1 is provided with the user application 11 and the network driver 12. A server computer 4 is provided with a network driver 41, a printer driver 42, and a file device 43. A printer 5 is provided with a network adapter 51, a print request analyzing portion 52, a security validating portion 53, a statistical information managing portion 54, a drawing processing portion 55, and an operating panel 56.

Detailed Description Text (28):

It is to be noted that the print request analyzing portion 52, the security validating portion 53, the statistical information managing portion 54, the drawing processing portion 55, and the operating panel 56 are structured and operated in the same way as elements 22a, 22b, 22d, 22e, and 22c of FIG. 1, respectively. While elements 22a, 22b, 22c, 22d, and 22e are maintained in the server computer 2, elements 52, 53, 54, 55, and 56 are maintained in a memory (ROM) in the printer 5. Reading and modifying the security data base by a manager is carried out via the operating panel 56.

Detailed Description Text (29):

The printer 5 uses the security data base on the file device 43 of the server computer 4 registered in advance, and validates printing as well as reading and modifying the security data base by a manager.

Detailed Description Text (30):

This embodiment of the present invention is different from the first embodiment in that various processing carried out by the print request analyzing portion 22a, the security validating portion 22b, the interface 22c for a manager, the statistical information managing portion 22d, and the drawing processing portion 22e provided in the printer driver 22 operating on the server computer 2 are executed in the printer 5, except that the file device 43 is managed by the printer driver 41 and the network driver 42 operating on the server computer 4. Accordingly, the load of various processing functions is moved to the printer 5, and thus, the load on the server computer 4 can be lightened.

Detailed Description Text (31):

Further, according to the previous embodiment of the present invention, if the printer 3 is detached from the server computer 2, printer 3 can be connected to and used with another computer (not shown). On the other hand, according to the present embodiment of the invention, since the file device 43 with the security data base is separated from security validating portion 53, it is impossible to separate the printer 5 from the server computer 4 and use it with another computer, preventing improper use of printer 5.

Detailed Description Text (32):

In this way, information indicating a range of authority, including a maximum number of printable pages, usable printer functions, and status of use of the printer by the user are stored in the security data base provided in the file device 23. Upon receipt of a print request, print validating means 22b or 53 analyzes the print request in light of the user ID and the information in the security data base to determine either authorization or non-authorization. The

statistical information managing portion 22d or 54 updates the cumulative order in the security data base corresponding to the user ID after printing. When a user ID with manager authority is inputted from the interface 22c for a manager or the operating panel 56, the security data base may be read and modified. This way, restrictions on the number of printed pages or a usable printing functions with respect to every user can be placed and a manager can manage status of use of the printer 3 or 5.

Detailed Description Text (33):

The more paper a user consumes, the less that remains available. Thus, it is possible to make a user himself refrain from printing more than is necessary. For example, unnecessary consumption of expensive sheets such as woodfree paper and OHP sheets for printing drafts will decrease, which leads to reduced resources consumption and cost.

Detailed Description Text (34):

Accordingly, by setting limits as to number of printed pages based on paper type and paper feeder, the print characteristics can be changed automatically depending on the status of use by every user. Therefore, consumption of unnecessary pages can be prevented.

Detailed Description Text (35):

Further, since authority of a user can be adjusted, flexible handling is possible, for example, to increase the maximum number of printable pages with respect to a user who must print a great amount, so such a user will not run short. When accounting is made with respect to each type of paper, since a printing cost per page is different between color printing and monochrome printing, or between recycled paper and an OHP sheet, it is unfair to set a single rate per page. Since the number of printed pages with respect to every kind of paper and the number of times a special printing function is used are now known, fair accounting corresponding to actual cost can be made.

Detailed Description Text (36):

Accordingly, information concerning which user used how many pages of which kind of paper or how many times a special printing function has been used can be provided. This allows a manager to use past data when he resets the authority of a user, based on frequency of use. Further, as information is recorded with respect to every type of paper, statistical analysis may be performed.

CLAIMS:

1. A print system with a shared printer on a network, comprising:

a data base for storing limitation information and print history information with respect to print characteristics, said limitation information and print history information being stored for respective users as identified by user identifying information, said limitation information including maximum sheet numbers of respective kinds of paper for respective users and said print history information including printed sheet numbers of the respective kinds of paper for respective users;

a means for restricting access to said printer based on said limitation information, said print history information, and said user identifying information, and when a total of a requested number of sheets of a requested kind of paper plus the printed sheet number of the requested kind of paper exceeds the respective maximum sheet number of the requested kind of paper, for indicating an available number of sheets of the requested kind of paper or suggesting the requested number of sheets of a different kind of paper; and

a means for reading and modifying said data base in response to externally provided

instructions, said means for reading and modifying said data base modifies said maximum sheet numbers for respective users in said limitation information of said data base.

2. The print system of claim 1, wherein said access restriction means comprises:

a means for validating an inputted print request based on contents of said print request, said user identifying information, and said contents of said data base, said print validation means providing either authorization or non-authorization for said print request; and

a means for updating said print history if said print authorization is provided, by modifying said print history in said data base, based on said user identifying information and said print request.

3. The print system as claimed in claim 2, wherein said print history updating means comprises a means for adding a number of printed pages and a number of uses of special printer functions for said print request to said print history information.

4. The print system as claimed in claim 1, wherein said reading and modifying means comprises:

a checking means for checking manager identifying information included in said externally provided instruction against manager identifying information stored in said data base; and

a means for reading and modifying said limitation information and said print history information as specified by said externally provided instruction when said checking means verifies said manager identifying information.

5. The print system as claimed in claim 1, wherein:

said limitation information includes data representing at least one of a maximum number of pages of each kind of paper, a maximum number of pages from respective paper feeders, and a maximum number of pages utilizing special printing function including at least a color printing function; and

said print history information includes data representing at least one of a cumulative number of pages of each kind of paper, a cumulative number of pages from respective paper feeders, and a cumulative number of pages utilizing special printing functions which have already been printed.

6. The print system as claimed in claim 5, further comprising an interface for allowing said user to select whether to print on the kind of paper selected up to the maximum number for said kind of paper or to print entire print request on a different kind of paper, when the total number of pages in said print request plus said cumulative number of pages of said selected paper in said print history information exceeds said maximum number of pages of said selected paper in said limitation information.

7. A print system with a printer shared on a network and a server connected with said network for managing said printer, wherein said server comprises:

a data base for storing limitation information including a maximum number of printed pages of respective kinds of paper and a maximum number of uses of special printer functions, said data base also storing print history information with respect to said number of printed pages of the respective kinds of paper and said uses of special printer functions, said limitation information and print history information being stored for respective users as identified by user identifying

information;

a means for validating an inputted print request based on contents of said print request, said user identifying information, and said contents of said data base, said print validation means providing either authorization or non-authorization for said print request, and when a total of a requested number of sheets of a requested kind of paper plus the printed sheet number of the requested kind of paper exceeds the respective maximum sheet number of the requested kind of paper, for indicating an available number of sheets of the requested kind of paper or suggesting the requested number of sheets of a different kind of paper;

a means for updating said print history if said print authorization is provided, by modifying said print history in said data base, based on said user identifying information and said print request; and

a means for reading and modifying said data base in response to externally provided instructions, said means for reading and modifying said data base modifies said maximum sheet numbers and maximum use numbers for respective users in said limitation information of said data base.

8. A print system with a printer shared on a network and a server connected with said network for managing said printer, wherein said server comprises:

a data base for storing limitation information including a maximum number of printed pages of respective kinds of paper and a maximum number of uses of special printer functions, said data base also storing print history information with respect to said number of printed pages of the respective kinds of paper and said uses of special printer functions, said limitation information and print history information being stored for respective users as identified by user identifying information;

and wherein said printer comprises:

a means for validating an inputted print request based on contents of said print request, said user identifying information, and said contents of said data base, said print validation means providing either authorization or non-authorization for said print request, and when a total of a requested number of sheets of a requested kind of paper plus the printed sheet number of the requested kind of paper exceeds the respective maximum sheet number of the requested kind of paper, for indicating an available number of sheets of the requested kind of paper or suggesting the requested number of sheets of a different kind of paper;

a means for updating said print history if said print authorization is provided, by modifying said print history in said data base, based on said user identifying information and said print request; and

a means for reading and modifying said data base in response to externally provided instructions, said means for reading and modifying said data base modifies said maximum sheet numbers and maximum use numbers for respective users in said limitation information of said data base.

9. A security management method for a print system with a printer shared on a network, comprising the steps of:

storing into a data base limitation information and print history information with respect to print characteristics, said limitation information and print history information corresponding to user identifying information for specifying a user of said printer into a data base, said limitation information including maximum sheet numbers of respective kinds of paper for respective users and said print history information including printed sheet numbers of the respective kinds of paper for

respective users;

validating an inputted print request to determine whether said print request is to be authorized or not, said validating being based on said print request and said limitation information and said print history information corresponding to said user identifying information;

indicating an available number of sheets of the requested kind of paper or suggesting the requested number of sheets of a different kind of paper when a total of a requested number of sheets of a requested kind of paper plus the printed sheet number of the requested kind of paper exceeds the respective maximum sheet number of the requested kind of paper;

updating said print history information in said data base corresponding to said user identifying information included in said print request after printing according to said print request is executed; and

referring to and modifying said data base, including the maximum sheet numbers for respective users, in response to instruction from the outside registered in advance.

10. The security management method of claim 9, wherein said print characteristics include at least one of color printing, double-sided printing, automatic stapling, printing on woodfree paper, printing on recycled paper, printing on OHP sheet and printing with a dedicated format.

11. The security management method of claim 10, wherein the print request validation step includes adding a number of pages in the print request to said print history information regarding a number of pages already printed of a requested kind, and executing said print request if a sum of said addition is not greater than said maximum number of allowed pages of said requested kind.

12. The security management method of claim 11, wherein the updating step includes adding the number of printed pages with regard to each kind of paper and the number of times a special printing function is used to the print history information for these values and storing the updated print history information in the data base.

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L1: Entry 165 of 261

File: USPT

Aug 25, 1998

DOCUMENT-IDENTIFIER: US 5798848 A

TITLE: Facsimile system having a facsimile machine and an external data processing device

Application Filing Date (1):
19960315

Drawing Description Text (7):

FIG. 5 is an operation sequence according to which sets of operation control data stored in the FAX of FIG. 1 are sent to the PC of FIG. 1, so that a user may change one or more of the sets of operation control data represented by images contained in the first image pattern while viewing the images on the display of the PC;

Detailed Description Text (5):

The FAX 1 includes a modem 11 which modulates image data in the form of digital signals, into analog signals, so that the analog image data are output to the first external line 6a via the NCU 5. In addition, the modem 11 demodulates image data in the form of analog signals received from the first external line 6a via the NCU 5, into digital signals. Moreover, the modem 11 sends and receives various signals needed to control the data communications.

Detailed Description Text (9):

A printer 18 of the FAX 1 records images corresponding to received image data, on a recording sheet, thereby providing a hard copy. The printer 18 may be of an electrophotographic type wherein a laser beam is used to form electrostatic latent images on a photoconductive drum, the latent images are developed with a toner, and the images developed are transferred onto a recording sheet and then fixed thereon, or of a thermal-recording type wherein a thermal head is used to thermally form images on a heat-sensitive sheet. An image-data memory 19 stores received image data, and dot data which are sent to the printer 18 for the image recording. The image-data memory 19 may be provided by a dynamic RAM (DRAM).

Detailed Description Text (10):

In the case where the FAX 1 receives image data or information from the FAX 9 and records images on a real-time basis, the two FAXes 1, 9, before sending and receiving the image data, send and receive various signals to and from each other according to predetermined communication control procedures. The image data received is temporarily stored in the buffer memory 12. The "compressed" image data are decoded (i.e., "extended") by a decoding device 20, and are processed into pages of dot data which in turn are stored in a dot-data memory area of the image-data memory 19. The dot data stored in the memory 19 are processed based on a predetermined degree of resolution, and the dot data processed are sent to the printer 18 so that images corresponding to the dot data may be recorded or printed on each of recording sheets.

Detailed Description Text (11):

In the case where the FAX 1 receives image data when no recording sheet is left in a sheet cassette thereof, that is, in the case of "in-emergency data reception", the CPU 10 automatically operates for temporarily storing the image data in the form of the compressed data, in the image-data memory 19. In this case, after new

recording sheets are supplied to the sheet cassette, the CPU 10 operates for processing the image data into dot data based on the predetermined degree of resolution, and storing the dot data in another dot-data memory area of the image-data memory 10.

Detailed Description Text (15):

As shown in FIG. 3, the PC 2 includes a CPU 30, a ROM 31 in which control programs are stored, a RAM 32 in which various sorts of data are temporarily stored, and an input and output (I/O) port (i.e., interface) 33. The PC 2 additionally includes an input device provided by a keyboard 34 and a mouse 35, an output device provided by an LCD 36 and a printer 37, and an external memory device 38 such as a hard disc. Thus, the FAX 1 is connected as an input and output device to the PC 2.

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☐ **Generate Collection**

L1: Entry 67 of 107

File: USPT

Nov 10, 1998

DOCUMENT-IDENTIFIER: US 5835663 A

TITLE: Apparatus for recording image data representative of cuts in a video signal

Abstract Text (1):

A video signal from a camera portion is supplied as moving picture data to a moving picture recording portion. The video signal is recorded by the moving picture recording portion with a time code attached thereto. The video signal from the camera portion is supplied to a series circuit of frame memories. The video signal is read from the memories every frame interval and supplied to a comparison calculation portion. In the comparison calculation portion, a change in scene is detected by comparison calculation (judgment of existence of correlation) of video signals having a time difference of one frame therebetween and the detection information of the change in scene is supplied to a controller. When a change in scene is detected, a one-frame portion of video signal is read from the memory under the control of the controller and the read signal is supplied to a still picture recording portion as still picture data to be recorded thereby. At this time, the one-frame portion of video signal is recorded together with a time code which is attached to the one-frame portion of video signal when it is recorded by the moving picture recording portion.

Application Filing Date (1):

19961210

Brief Summary Text (3):

The present invention relates to an apparatus for recording image data in which edition and search are facilitated.

Brief Summary Text (6):

In the above described field, it has recently been proposed to use the graphical user interface (GUI) of the computer to display representative images of cuts in reduced size as icons, to thereby help the editor comprehend the contents by intuition. There has further been proposed a method in which, when moving pictures are taken in a work station, not only representative images of cuts are displayed in reduced size, but also lengths of the cuts and movements between them are visually expressed (refer to the preprint No. 7 of Image Electronics Association Annual Conference, 1992, pp. 41 to 44.)

Brief Summary Text (7):

In order to display representative images of cuts in reduced size as described above, however, there arises problems that it becomes necessary to carry out such processes as to input image data from a video cassette recorder or the like to the computer, visually confirm breaks between the cuts aided by the computer, and store data of representative images of the cuts into memory, and such processing takes a length of time virtually the same as that required for the image pickup.

Brief Summary Text (9):

Accordingly, it is an object of the present invention to provide an image data recording apparatus capable, while picking up images, of automatically recording representative image data of each cut together with address information.

Brief Summary Text (10):

According to an aspect of the present invention, there is provided an apparatus for recording image data which comprises first recording means for recording a video signal output from a video camera as moving picture data together with address information, comparison calculation means for detecting a change in scene according to an interframe or interfield correlation of the video signal, and second recording means for recording, when a change in scene is detected by the comparison calculation means, a one-screen portion of the video signal, as still picture data, together with the address information corresponding thereto.

Brief Summary Text (11):

In the present invention, during the image pickup in which a video signal output from a video camera 1 is recorded as moving picture data by a first recording means 2, if a change in scene is detected by a comparison calculation means 6, a one-screen portion of the video signal output from the video camera 1 is recorded as still picture data by a second recording means 7. Accordingly, the need for extracting a representative image of each cut and recording the same after the image pickup has been completed can be eliminated, and the representative image of each cut can be displayed immediately after the image pickup.

Brief Summary Text (12):

Further, since a one-screen portion of a video signal is recorded as still picture data together with corresponding address information by the second recording means 7, the position on a recording medium where the moving picture data corresponding to specific still picture data is recorded can be easily identified according to the address information recorded together with the still picture data.

Drawing Description Text (2):

FIG. 1 is a block diagram showing an embodiment of an image recording apparatus according to the invention.

Detailed Description Text (3):

Referring to the drawing, reference numeral 1 denotes a video camera portion, and operations of the video camera portion 1 are controlled by a system controller 3. A video signal VS output from the video camera portion 1 is supplied as moving picture data to a moving picture recording portion 2. The moving picture recording portion 2 is formed for example of a moving picture recording and reproducing apparatus, such as a video tape recorder and a magneto-optical disk apparatus. Operations of the moving picture recording portion 2 are controlled by the controller 3 and the video signal VS together with a time code as address information is recorded on a recording medium such as a tape and a disk.

Detailed Description Text (6):

The information of detected change in scene output from the comparison calculation portion 6 is supplied to the controller 3. When the information of detected change in scene indicates a change in scene, a one-frame portion of video signal (the video signal for the last cut) is read from the memory 5 under the control of the controller 3 and supplied as still picture data to a still picture recording portion 7 to be recorded thereby. The still picture recording portion 7 is formed of a recording and reproducing device of for example an IC card memory, a disk, and the like. When a one-frame portion of the video signal is recorded by the still picture recording portion 7, the time code, as address information, which is attached to the one-frame video signal when it is recorded by the moving picture recording portion 2, is also recorded.

Detailed Description Text (7):

Incidentally, it is not necessary for the still picture recording portion 7 to write all of the data of the one-frame video signal. For example, in such a case where the image size of the still picture, when it is displayed, is arranged to be smaller than the image size of the moving picture, the data can be recorded with

its quantity reduced by taking average values for blocks. Thereby, the storage capacity of the IC card can be saved and, in such case, the storage capacity of the memories 4 and 5 themselves can also be made smaller.

Detailed Description Text (8):

In the present example, every time a change in scene is produced in the video signal VS, a change in scene is detected in the comparison calculation portion 6 and a one-frame portion of video signal is read from the memory 5 and recorded as still-picture data by the still picture recording portion 7. Accordingly, it has become unnecessary in this example to carry out the processes of extracting a representative image of each cut by reproducing image data after completing an image pickup and to record still-picture data as was practiced in the conventional art, but the representative image of each cut can be displayed immediately after an image pickup.

Detailed Description Text (9):

When a one-frame portion of video signal is recorded as still picture data by the still picture recording portion 7, it is recorded together with the time code, which is given to the one-frame portion of video signal when it is recorded by the moving picture recording portion 2, and, therefore, the position on the recording medium in which the moving picture data corresponding to the still picture data is recorded can be easily identified according to the time code recorded with the still picture data.

Detailed Description Text (11):

Although, in the above described embodiment, the judgment of existence of a correlation between video signals is performed in the comparison calculation portion 6 using video signals having a time difference of one frame therebetween, it may also be practiced, by having field memories provided instead of the frame memories 4 and 5, to allow the comparison calculation portion 6 to perform comparison calculation (judgment of existence of correlation) of video signals having a time difference of one field therebetween to thereby detect a change in scene. In such case, the still picture data recorded by the still picture recording portion 7 becomes a one-field portion of video signal.

Detailed Description Text (12):

Although, in the above embodiment, the case where the recording medium recording still picture data in the still picture recording portion 7 is separate from the recording medium for recording the moving picture data in the moving picture recording portion 2 is described, it may be arranged such that the still picture data is recorded in a specific position on the recording medium for recording the moving picture data. In such case, for example the moving picture recording portion 2 and the still picture recording portion 7 are constituted of a disk recording and reproducing device and the moving picture data and the still picture data are recorded in parallel with a plurality of heads. As another way, it may be arranged, by constituting the still picture recording portion 7 of a temporary storage portion, such that plural picture screens of still picture data are read from the still picture recording portion 7 and recorded en bloc in a specific position on the recording medium of the moving picture data.

Detailed Description Text (13):

By recording the still picture data in a specific position on the recording medium for recording moving picture data as described above, the representative image of each cut can be displayed by accessing the specific position on the recording medium after an image pickup, and the representative image can be utilized as an icon visually displaying the contents and, at the same time, the position where each cut is recorded can be easily identified according to the time code recorded together.

Detailed Description Text (14):

Although a type integrated with a camera, i.e., a type in which the video camera portion 1, moving picture recording portion 2, and still picture recording portion 7 are integrated, is shown in the above described embodiment, the invention can be equally applied to the case where a video camera portion 1 and the recording portions 2 and 7 are arranged in separate bodies.

Detailed Description Text (15):

According to the invention, during the image pickup in which a video signal output from a video camera is recorded as moving picture data by a first recording means, a one-screen portion of the video signal output from the video camera is recorded as still picture data by a second recording means when a change in scene is detected by a comparison calculation means and, hence, the need for carrying out the process to extract the representative image of each cut after an image pickup can be eliminated. Therefore, such a meritorious effect can be obtained that a representative image of each cut can be displayed immediately after an image pickup.

Detailed Description Text (16):

Further, a one-screen portion of video signal is recorded as still picture data by the second recording means together with corresponding address information, such a meritorious effect can be obtained that the position on the recording medium in which moving picture data corresponding to specific still picture data is recorded can be easily identified according to the address information recorded together with the still picture data.

CLAIMS:

1. A video signal shooting and recording apparatus comprising:

a camera imaging device for capturing a number of images and for producing a video signal from said number of images and outputting the produced video signal;

first recording means for recording the video signal representative of said number of images as moving picture data together with address information;

first and second memories receiving said video signal for respectively storing image data corresponding to first and second consecutive frames of the received video signal;

means receiving the stored image data from said first and second memories for detecting a change in scene based upon an interframe or interfield correlation of said stored image data while said camera imaging device produces the video signal and outputs the produced video signal; and

second recording means for recording a respective frame or portion thereof of said video signal as still picture data from at least one of said first and second memories together with said address information corresponding thereto when the detecting means detects said change in scene while said camera imaging device captures and produces the video signal and outputs the produced video signal, said second recording means enabling each recorded frame or portion to be outputted therefrom so as to enable said still picture data with the corresponding address information to be displayed substantially immediately after said camera imaging device produces said video signal without having to complete the recording of the video signal representative of all of the images by said first recording means and without having to reproduce said video signal with the use of a reproducing device.

2. An apparatus for recording image data according to claim 1, further comprising means for decreasing the data quantity of said still picture data recorded by said second recording means thereby making the size of image of the still picture

smaller than the size of image of the moving picture.

3. An apparatus for recording image data according to claim 1, further comprising means for recording said still picture data in a specific position on a recording medium for recording said moving picture data.

4. An apparatus for recording image data according to claim 1, wherein said moving picture data and said still picture data are recorded on separate recording media.

5. An apparatus for recording image data according to claim 4, wherein said recording media for recording said moving picture data and said still picture data are disposed within the same housing.

6. An apparatus for recording image data according to claim 1, wherein said video camera and said first and second recording means are integrally formed.

7. An image data recording apparatus comprising:

a video camera device for capturing a number of images and for producing a video signal from said number of images and for supplying therefrom said video signal having a plurality of frames of image data;

first recording means for recording on a first recording medium said video signal representative of said number of images as moving picture data together with address information;

first and second memories for receiving said video signal and for respectively storing the image data corresponding to first and second consecutive frames;

comparing means for receiving and comparing the stored image data from said first and second memories so as to detect a change in scene based upon a correlation between the first and second frames of said stored image data; and

second recording means for recording on a second recording medium a respective frame or portion thereof of said video signal as still picture data from one of said first and second memories together with said address information corresponding thereto when said comparing means detects said change in scene while said video camera device captures and produces said video signal and supplies said video signal, said second recording means enabling each recorded frame or portion to be outputted therefrom so as to enable said still picture data with the corresponding address information to be displayed substantially immediately after said video camera device produces said video signal without having to complete the recording of the video signal representative of all of the images by said first recording means and without having to reproduce said video signal with the use of a reproducing device.

8. A video signal shooting and recording apparatus comprising:

a camera imaging device for capturing a number of images and for producing a video signal from said number of images and outputting the produced video signal;

first recording means for recording said video signal representative of said number of images;

means for producing an indication signal representing a change in scene of the video signal while said camera imaging device produces the video signal and outputs the produced video signal; and

second recording means responsive to said indication signal for recording a respective frame or portion thereof of said video signal as still picture data

together with address information corresponding thereto based on the indication signal when the indication signal represents said change in scene of the video signal while said camera imaging device captures and produces the video signal and outputs the produced video signal, said second recording means enabling each recorded frame or portion to be outputted therefrom so as to enable said still picture data with the corresponding address information to be displayed substantially immediately after said camera imaging device produces said video signal without having to complete the recording of the video signal representative of all of the images by said first recording means and without having to reproduce said video signal with the use of a reproducing device.

9. A video-signal shooting and recording apparatus according to claim 8, further comprising means for displaying the recorded still picture data after a shooting operation of the imaging means is completed.

10. A video signal shooting and recording apparatus according to claim 8, wherein the producing means includes first and second memories receiving said video signal for respectively storing image data corresponding to first and second consecutive frames of the received video signal and means receiving the stored image data from said first and second memories for detecting a change in scene based upon an interframe or interfield correlation of said stored image data.

11. Method of shooting and recording a video signal comprising the steps of:

capturing a number of images and producing a video signal from said number of images by use of a video camera and outputting the produced video signal;

recording said video signal representative of said number of images;

producing an indication signal representing a change in scene of the video signal while said video signal is produced and outputted; and

recording a respective frame or portion thereof of said video signal as still picture data together with address information corresponding thereto based on the indication signal when the indication signal represents said change in scene of the video signal while said video camera captures and produces said video signal and outputs the produced video signal, in which the step of recording a respective frame or portion enables each recorded frame or portion to be outputted so as to enable said still picture data with the corresponding address information to be displayed substantially immediately after said video camera produces said video signal without having to complete the recording of the video signal representative of all of the images and without having to reproduce said video signal with the use of a reproducing device.

First Hit☐ **Generate Collection**

L1: Entry 99 of 107

File: EPAB

Jan 7, 1999

DOCUMENT-IDENTIFIER: EP 889636 A2

TITLE: Image communication system and method

Abstract Text (1):

CHG DATE=19990905 STATUS=O> A system in which an editing server (10) and a lot of client computers (1) are capable of communicating with one another, and an edited image can be generated by the plurality of client computers. When image data is transmitted from the image server to the client computer, the resolution of image data to be transmitted is reduced in correspondence with the resolution of a monitor display device connected to the client computer. Further, the number of colors of an image represented by the image data is decreased in correspondence with the number of colors which can be displayed on the monitor display device. The data quantity of the image data to be transmitted is reduced, so that time required to transmit the image data is shortened. A user image to be synthesized on a template image is read in the client computer. Image data representing the template image used for the image synthesis and image data representing a mask image are transmitted from the main image server to the client computer. In the client computer, image synthesis processing is performed. Image data representing an area required for image synthesis of the user image used for the image synthesis is extracted. The extracted user image data and synthesis information required for the synthesis are transmitted from the client computer to the main image server, where a composite image is printed. A lot of client computers and an editing server are connected to one another via an internet. One of the client computers generates an edited image, and another client computer reedits the generated edited image. The process of the editing can be also confirmed on a display screen by a client

computer which does not relate to the editing.

Application Date (1):19980630

First Hit Fwd Refs



Generate Collection

L1: Entry 35 of 261

File: USPT

Nov 18, 2003

DOCUMENT-IDENTIFIER: US 6650318 B1
TITLE: Data input device

Application Filing Date (1):
20001013

Drawing Description Text (11):

FIG. 7 is a simplified illustration of a non-standard layout of keys on an optically generated image of a keyboard, wherein a user can modify the arrangement, size and shape of the "virtual" keys, in accordance with a preferred embodiment of the present invention;

Detailed Description Text (12):

Reference is now made to FIG. 6 which illustrates a multilingual keyboard 80, constructed and operative in accordance with a preferred embodiment of the present invention. Keyboard 80 is preferably formed by laser unit 68, described hereinabove. Laser unit 68 preferably forms a silhouette of keys 82 with alphanumeric characters 84 formed in the outline of each key 82. In the embodiment of FIG. 6, a linguistic processor 86 is in electrical communication with laser unit 68. Linguistic processor 86 is operative to form an optical image of letters of any alphabet, as chosen by the user.

Detailed Description Text (31):

As mentioned hereinabove, laser unit 68 is considered the most preferred embodiment, but other light units can be used to generate the optical image of the data input device. Another example is shown in FIG. 18, mirror array 60 (described hereinabove with reference to FIG. 4A) may include a mirror 160 with a darkened portion 162 that does not reflect light, and clear portions 164 which do reflect light. The clear portions 164 are shaped like characters, numerals, letters or any other shape which it is desired to form a light-generated image 166 thereof.